



AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-24. (Cancelled)

25. (Currently Amended) A hardenable mass containing uretdione groups containing:

- (A) a linear or branched bonding agent component having which has at least one of terminal and side chain hydroxyl groups, with a hydroxyl number of 25 to 400, and an average molecular weight of 400 to 20,000, and which is present in a fluid or viscous form above the reaction or processing temperature;
 - (B) a polyaddition compound which is present in a fluid or viscous form above the reaction or processing temperature and containing temperature, contains uretdione groups and is based on at least one aliphatic and/or cycloaliphatic diisocyanate; and
 - (C) at least one active or reactively activatable Lewis acid catalyst;
- said bonding agent component (A):
- (A1) being free of carboxyl groups, or
 - (A2) having a concentration of carboxyl groups less than a concentration of active catalyst (C), or
 - (A3) having a concentration of carboxyl groups higher than a concentration of active catalyst (C), and an amount of reactive agent is added to block an amount of carboxyl groups in order to realize a concentration of active catalyst (C); and

wherein:

- (C1) in the case of (A1) and (A2), the use of Lewis acid carboxylates as catalysts is excluded, ~~and~~
- ~~(C2) in the case of (A3), Lewis acid carboxylates also being included that are or may be reactivated by means of alkylating agents to carbonic acid esters while forming Lewis acid alcoholates.~~

26. (Previously Presented) The hardenable mass according to claim 25, further comprising at least one other catalyst utilizable in urethane chemistry.

27. (Previously Presented) The hardenable mass according to claim 25, further comprising auxiliary materials and additives.

28. (Currently Amended) The hardenable mass according to claim 25, wherein said polyaddition compound (B) ~~comprises~~ contains free isocyanate groups ~~based on at least one of aliphatic and cycloaliphatic diisocyanates.~~

29. (Currently Amended) The hardenable mass according to claim 25, wherein the bonding agent component (A) comprises a polymer ~~compound~~ component having hydroxyl groups.

30. (Previously Presented) The hardenable mass according to claim 29, wherein the polymer component comprises at least one of polyacrylates, polyethers, polyesters, and oligo- and polyepoxides.

31. (Currently Amended) The hardenable mass according to claim 25, wherein the polyaddition compound (B) comprises a polyaddition compound based on at least one of isophorone diisocyanate and hexamethylene diisocyanate ~~having uretdione groups.~~

32. (Currently Amended) The hardenable mass according claim 31, wherein the polyaddition compound (B) ~~further comprises~~ contains free isocyanate groups.

33. (Previously Presented) The hardenable mass according to claim 25, wherein said reactive agent comprises at least one of an epoxy compound and an oxazoline compound.

34. (Previously Presented) The hardenable mass according to claim 25, wherein said at least one active or reactively activatable Lewis acid catalyst (C) comprises at least one metalorganic catalyst of the general formula:



in which

Me is metal,

R is alkyl residue, and

X is carboxylate residue.

35. (Previously Presented) The hardenable mass according to claim 25, wherein said at least one active or reactively activatable Lewis acid catalyst (C) comprises at least one metalorganic catalyst of the general formula:



in which

Me is metal,

R is alkyl residue, and

Y is alcoholate residue.

36. (Currently Amended) The hardenable mass according to claim 25, wherein said at least one active or reactively activatable Lewis acid catalyst (C) comprises at least one metalorganic catalyst of the general formula:



in which

Me is metal,

Z is ~~acetylacetonate~~ acetylacetonate residue, and

n is 2 or 3.

37. (Currently Amended) The hardenable mass according to claim 25, in which said at least one active or reactively activatable Lewis acid catalyst (C) comprises at least one derivative of at least one metalorganic catalyst of:

(a) the general formula



in which

Me means metal,

R means alkyl residue, and

X means carboxylate residue; and

(b) the general formula



in which

Me means metal,

R means alkyl residue, and

Y means alcoholate residue; and

(c) the general formula



in which

Me means metal,

Z means ~~acetylacetonate~~ acetylacetonate residue, and

n means 2 or 3; ~~and derivatives thereof.~~

38. (Currently Amended) The hardenable mass according to claim 25, in which said at least one active or reactively activatable Lewis acid catalyst (C) comprises mixtures of at least one metalorganic catalyst of:

(a) the general formula



in which

Me means metal,

R means alkyl residue, and

X means carboxylate residue; and

(b) the general formula



in which

Me means metal,

R means alkyl residue, and

Y means alcoholate residue; and

(c) the general formula

$Z_n\text{Me}$

in which

Me means metal,

Z means ~~acetylacetonate~~ acetylacetonate residue, and

n means 2 or 3; ~~and derivatives thereof~~; and

at least one derivative of the at least one metalorganic compound.

39. (Currently Amended) The hardenable mass according to claim 25 26, wherein said other catalyst utilizable in urethane chemistry comprises nucleophilic substances.

40. (Previously Presented) The hardenable mass according to claim 25, wherein said bonding agent component (A) has a hydroxyl number of 25 to 200 and an average molecular weight of 1,000 to 10,000.

41. (Currently Amended) ~~Process~~ A process for production of a hardenable mass containing uretdione groups, comprising:

- (a) homogenizing components in at least one of a solution and a melt, at the longest until an increase in molar mass can be verified, said components comprising:
 - (A) a linear or branched bonding agent component ~~having~~ which has at least one of terminal and side chain hydroxyl groups, with a hydroxyl number of 25 to 400, and an average molecular weight of 400 to 20,000, and which is present in a fluid or viscous form above the reaction or processing temperature;
 - (B) a polyaddition compound which is present in a fluid or viscous form above the reaction or processing ~~temperature and containing~~ temperature, contains uretdione groups that are not cross-linked and is based on at least one aliphatic and/or cycloaliphatic diisocyanate; and
 - (C) at least one active or reactively activatable Lewis acid catalyst;
- said bonding agent component (A):
- (A1) being free of carboxyl groups, or

- (A2) having a concentration of carboxyl groups less than a concentration of active catalyst (C), or
 - (A3) having a concentration of carboxyl groups higher than a ~~concentration~~ concentration of active catalyst (C), and an amount of reactive agent is added to block an amount of carboxyl groups in order to realize a concentration of active catalyst (C); and
- wherein:
- (C1) in the case of (A1) and (A2), the use of Lewis acid carboxylates as catalysts is excluded, and
 - ~~(C2) in the case of (A3), Lewis acid carboxylates also being included that are or may be reactivated by means of alkylating agents to carbonic acid esters while forming Lewis acid alcoholates; and~~
 - (b) quickly cooling the at least one of a solution and a melt to below a reaction temperature of a resulting hardenable mass; and
 - (c) processing of the resulting hardenable mass to complete cross-linking.

42. (Previously Presented) The process according to claim 41, wherein the resulting hardenable mass is stored prior to processing of the resulting hardenable mass to complete cross-linking.

43. (Currently Amended) The process according to claim 41, wherein the processing of the resulting hardenable mass to complete cross-linking includes increasing the temperature of the resulting hardenable mass by at least one of linearly and non-linearly, or maintaining a constant reaction temperature sufficiently long until essentially no more reaction heat can be verified using DSC measurements.

44. (Previously Presented) The process according to claim 41, wherein the homogenizing of the resulting hardenable mass is performed in a melt in a laboratory kneader or at least one of a co-kneader and an extruder.

45. (Previously Presented) The process according to claim 41, wherein the homogenizing of the resulting hardenable mass is performed at temperatures less than or equal to 110°C.

46. (Previously Presented) The process according to claim 45, wherein the homogenizing of the resulting hardenable mass is performed at temperatures between 50 and 100°C.

47. (Previously Presented) The process according to claim 41, wherein the homogenizing of the resulting mass is performed for up to 30 min.

48. (Previously Presented) The process according to claim 41, wherein the cooling below a reaction temperature after the homogenization is performed by insertion of the resulting hardenable mass into liquid nitrogen or by applying the resulting hardenable mass to a cooling belt.

49. (Previously Presented) The process according to claim 47, wherein resulting hardenable mass comprises a melt.

50. (Previously Presented) The process according to claim 41, wherein at least one of the components is used in a fluid form.

51. (Currently Amended) The process according to claim 43, wherein the temperature is increased at least one of linearly and non-linearly in a range of preferably ~~20 K~~ 20°K above a homogenization temperature up to a maximum of 200°C.

52. (Currently Amended) The process according to claim 51, wherein the temperature is increased at least one of linearly and non-linearly in a range of preferably ~~20 K~~ 20°K above a homogenization temperature up to a maximum of 180°C.

53. (Currently Amended) The process according to claim 41, wherein ~~in~~ which a catalyst other than catalyst (C) is added at reduced temperatures after the homogenizing of the components (A), (B) and (C).

54. (Currently Amended) The process according to claim 41, wherein the homogenizing of the resulting hardenable mass is in a melt.

55. (Currently Amended) The process according to claim 41, wherein the homogenizing of the resulting hardenable mass is performed in at least one stage in a melt, with the catalyst being added at lower temperatures in a single-stage homogenization and, in a multi-stage homogenization, ~~is not~~ the catalyst not being added until a second stage at lower temperatures.

56. (Previously Presented) The process according to claim 43, wherein the temperature is increased in stages and the temperature is kept constant after every increasing step for a time period of 1 to 60 minutes.

57. (Previously Presented) The process according to claim 43, wherein the temperature is increased in stages and the temperature is kept constant after every increasing step for a time period of 5 to 30 minutes.

58. (Currently Amended) The process according to claim 43, wherein the temperature is increased in two stages, with the second increase in temperature being performed immediately thereafter or ~~temporally~~ temporarily later.

59. (Previously Presented) A heat-resistant substrate coated with the hardenable mass according to claim 25.

60. (Previously Presented) A thermolabile substrate coated with the hardenable mass according to claim 25.

61. (Previously Presented) A masking component comprising the hardenable mass according to claim 25.

62. (Previously Presented) A treatable, hardenable coating form comprising the hardenable mass according to claim 25.

63. (Previously Presented) A thermally hardenable molding compound comprising the hardenable mass according to claim 25.

64. (Previously Presented) A thermally hardenable surface comprising the hardenable mass according to claim 25.

65. (Previously Presented) A hardenable mass produced by the process according to claim 25.